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REMARKS

Claims 1-18 are pending, including independent claims 1-3, 6 and 10-18. The Examiner has rejected the claims, and Applicant traverses the rejections, as follows:

Claim 1, which is directed to the first embodiment, is rejected under 35 U.S.C. § 102(b) as being anticipated by either of Tanaka et al (USPN 4805972) (hereinafter Tanaka I) or Ackermann et al (USPN 5714828).

Regarding the rejection over Tanaka I, the reference fails to teach that the hub is disposed against an upper portion of the sleeve as illustrated in Fig.

3. Accordingly, Applicant has amended Claim 1 to recite:

a hub disposed against an upper portion of said rotor and said sleeve...

Regarding the rejection over Ackermann, the claim already distinguishes over the reference by reciting that the hub is disposed over the upper portion of the rotor. Accordingly, the rejection of Claim 1 over Ackermann is incorrect. Furthermore, Ackerman places a rolling bearing 5a, 5b against the upper portion of the shaft while the invention provides a gas-containing volume disposed along substantially an entire length of the shaft. Accordingly, the shaft is without a rolling bearing disposed along its length. Thus, Applicant has amended Claim 1 to recite:

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a gas-containing volume between said sleeve and said outer circumferential part of said shaft so that only an ~~defining an~~ aerodynamic bearing is disposed along a length of said shaft...

Claim 2 has been rejected under 35 U.S.C. §§112, first paragraph and 102(b).

Regarding the rejection of Claim 2 under § 112, first paragraph, the claim is directed to the sixth embodiment illustrated in Fig. 14 because the claim recites that the rotor surrounds the outer circumferential part of the coil. Applicant has amended the claim as follows to overcome the rejection:

a hub supporting said sleeve and said rotor, said hub surrounding ~~covering an upper portion of the shaft and such that the coil locates around~~ an outer circumferential part of said rotor...

Regarding the rejection of Claim 2 under § 102(b), the Examiner asserts that the claim is anticipated by Tanaka et al (USPN 6271612) (hereinafter Tanaka II). In reviewing the reference, Tanaka II fails to teach that the hub supports a top part of the sleeve that is immediately adjacent to the shaft. Accordingly, Applicant has amended Claim 2 to recite:

a sleeve on an outer circumferential part of said shaft, separated from said shaft only by a gas volume...
a hub supporting an upper portion of said sleeve and said rotor...

Claim 3 has been rejected under 35 U.S.C. §§112, first paragraph, 102(a) and 102(b).

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Regarding the rejection of Claim 3 under § 112, first paragraph, the claim is directed to the seventh embodiment illustrated in Fig. 15 by reciting that (1) the sleeve is attached to and projects upward from the base, (2) the shaft projects into the sleeve without reciting that the shaft projects from the base. Applicant asserts that the rejection has been overcome by amending Claim 3 to recite:

a coil ~~on the base and~~ surrounding an outer circumferential part of said rotor...

Regarding the rejections of Claim 3 under §§ 102(a) and 102(b), the Examiner asserts that the claims are anticipated by either of Nishimura et al (US Pub. No. 20030048575) and Lee et al. (USPN 6071014).

Regarding the rejection over Nishimura, the reference fails to teach that the sleeve projects above and below the base as illustrated in Fig. 15. Regarding the rejection over Lee, the reference fails to teach that the sleeve both projects above and below the base and is surrounded by the base. Accordingly, to overcome the rejection over Nishimura and Lee, Applicant has amended the claim to recite:

a sleeve, projecting upwardly and downwardly from said base at a point adjacent a central portion of said base, a portion of said sleeve being surrounded by said base...

Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ackermann as modified by Tanaka (USPN 5683183) (hereinafter Tanaka II).

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Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ackermann as modified by Tanaka III and as further modified by Sung et al (USPN 6618214). Regarding Claim 4, the Examiner acknowledges that Ackermann fails to teach a hub covering an upper part of the shaft and asserts that Tanaka III teaches this limitation.

Claims 4 and 5 contain the limitations of claims 1 and 4, respectively, and overcome rejections therewith.

Furthermore, regarding the combination of Ackermann and Tanaka III, in none of the embodiments in Tanaka III is the upper portion of the shaft illustrated as engaging any surface other than a bearing (e.g., ball bearing 6, bearing sleeve 50). Furthermore, Figs. 11 and 16B illustrate a thrust bearing 17 disposed over the shaft 3 but the hub 2 is not illustrated as being disposed over the shaft. Accordingly, Applicant asserts that the rejection in view of the combination of Ackermann and Tanaka III is incorrect.

Claim 6-9 have been rejected under 35 U.S.C. §§ 112, first paragraph and 103(e).

Regarding the rejection of Claim 6 under § 112, first paragraph, the claim is directed to the first embodiment. To overcome the rejection, Applicant has amended the claim to recite:

a back yoke surrounding ~~attached to~~ a circumferential part of said coil;
a hub, supporting said back yoke, said sleeve, and said rotor, and

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covering an upper part of said shaft;
~~a color wheel attached to said back yoke;~~
a holder connected to said back hub and projecting outwardly
along a direction of a core of said shaft and at a right angle to said shaft;
a color wheel connected to said holder;

Regarding the rejection of Claim 6 under § 103(a), the Examiner asserts that the claim is unpatentable over Ackermann as modified by Tanaka III and as further modified by Sung and Komura (USPN 6417590).

Applicant has amended Claim 6 as with Claim 1 to further distinguish over Ackermann. Furthermore, as indicated above, the combination of Ackerman and Tanaka III fails to teach the limitations asserted by the Examiner. Moreover, the teachings of these references are conflicting and as such the combination of the references is improper. Specifically, the combination of Ackermann and Tanaka III requires that a thrust bearing is placed adjacent to the shaft and the combination of Ackermann and Tanaka III with Komura alters this structural configuration. Such a conflicting in structural arrangements is evidence that the references are not combinable.

Furthermore, Komura teaches the desirability of removing the coil from a position that surrounds the shaft and disposing a stator below the shaft. Further, Komura teaches removing the thrust member 106 from the top of the shaft and disposing the member on the bottom of the shaft 3. Komura specifically teaches that if these changes were not provided, "since the thrust member 104 which

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floats upward, the base plate 101 and the cover 105 are required to undergo processing for centering, thus making the shape complex and the assembly difficult". Komura, column 2, ln 28. As such, Komura conflicts with the structure of the claimed invention, Ackermann and Tanaka because in each of these disclosures, the coil is adjacent to the shaft. Moreover, based on the teachings of Komura, Applicant has amended Claim 6 to further clarify the invention:

a first magnet attached to a concavity of an upper part of said hub,
said first magnet being a thrust magnet...

Such amendments should overcome the rejections to claims 7-9 depending from Claim 6.

Claim 10 has been rejected under 35 U.S.C. §§112, first paragraph and 103(a).

Regarding the rejection of Claim 10 under § 112, first paragraph, the claim is directed to the second embodiment illustrated in Figs. 6 and 7 and is distinguished from the first embodiment by reciting that (1) the hub covers an outer circumferential part of the yoke and (2) the color wheel is attached to an outer circumferential part of the sleeve. To overcome the rejection, Applicant has amended the claim to recite:

a back yoke surrounding ~~attached to~~ a circumferential part of said coil;

a hub, supporting said back yoke, said sleeve, and said rotor, and covering an outer circumferential part of said back yoke;

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~~a color wheel attached to an outer circumferential part of said sleeve;~~
a holder connected to said hub and projecting outwardly along a direction of a core of said shaft and at a right angle to said shaft;
a color wheel connected to said holder;

Regarding the rejection of Claim 10 under § 103(a), the Examiner asserts that the claim is unpatentable over Ackermann as modified by Tanaka III and as further modified by Sung and Komura (USPN 6417590). Applicant has amended Claim 10 as with Claim 1 to distinguish over Ackermann and Claim 6 to distinguish over Komura.

Applicant has cancelled Claim 11 as being a substantial duplicate of Claim 10.

Claim 12 has been rejected under 35 U.S.C. §§112, first paragraph and 103(a).

Regarding the rejection of Claim 12 under § 112, first paragraph, the claim is directed to the third embodiment illustrated in Figs. 8 and 9 and is distinguished from the second embodiment by reciting that back yoke is attached to the base. To overcome the rejection, Applicant has amended the claim to recite:

a hub, supporting ~~said back yoke~~, said sleeve, and said rotor, and covering an outer circumferential part of said back yoke...

Regarding the rejection of Claim 12 under § 103(a), the Examiner asserts that the claim is unpatentable over Ackermann as modified by Tanaka III and as

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further modified by Sung and Komura (USPN 6417590). Applicant has amended Claim 12 as with Claim 1 to distinguish over Ackermann and Claim 6 to distinguish over Komura.

Claim 13 has been rejected under 35 U.S.C. §§112, first paragraph and 103(a).

Regarding the rejection of Claim 13 under § 112, first paragraph, the claim is directed to the fourth embodiment illustrated in Figs. 10 and 11 and is similar to the second embodiment and broader than Claim 10 by not reciting the color wheel. To overcome the rejection, Applicant has amended the claim to recite

a back yoke surrounding ~~attached to~~ a circumferential part of said coil...

Regarding the rejection of Claim 13 under § 103(a), the Examiner asserts that the claim is unpatentable over Ackermann as modified by Tanaka III and as further modified by Sung and Komura (USPN 6417590). Applicant has amended Claim 10 as with Claim 1 to distinguish over Ackermann and Claim 6 to distinguish over Komura.

Claim 14 has been rejected under 35 U.S.C. §§112, first paragraph and 103(a).

Regarding the rejection of Claim 14 under § 112, first paragraph, the claim is directed to the fifth embodiment illustrated in Figs. 12 and 13 and is

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distinguished from the second embodiment by reciting that hub sleeve covers the outer circumferential part of the coil. As the embodiment is without a yoke, Applicant has amended this claim as follows to overcome the rejection:

~~a back yoke attached to an outer circumferential part of said coil;~~
a hub, supporting ~~said back yoke~~, said sleeve, and said rotor, and
covering an outer circumferential part of said coil...

Regarding the rejection of Claim 14 under § 103(a), the Examiner asserts that the claim is unpatentable over Ackermann as modified by Tanaka III and as further modified by Sung and Komura (USPN 6417590). Applicant has amended Claim 14 as with Claim 1 to distinguish over Ackermann and Claim 6 to distinguish over Komura.

Claim 15 has been rejected under 35 U.S.C. §§112, first paragraph.

Regarding the rejection of Claim 15 under § 112, first paragraph, the Claim is directed to the sixth embodiment illustrated in Fig. 14 and is distinguished from the first embodiment by reciting that (1) the back yoke is attached to the outer circumferential part of the sleeve and (2) the rotor surrounds the outer circumferential part of the coil. The claim does not recite that the yoke is attached to the coil. Accordingly, Applicant has amended the claim to overcome the rejection by reciting:

a hub, supporting said back yoke, said sleeve, and said rotor, ~~and~~
~~covering an outer circumferential part of said back yoke;~~
~~a color wheel attached to an outer circumferential part of said~~
sleeve;

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a holder connected to said hub and projecting outwardly along a direction of a core of said shaft and at a right angle to said shaft;
a color wheel attached to said holder;

The Examiner has not rejected Claim 15 over the prior art and Applicant requests that the claim be allowed based on the amendments overcoming the rejection under §112.

Claim 16 has been rejected under 35 U.S.C. §§112, first paragraph and 103(a).

Regarding the rejection of Claim 16 under § 112, first paragraph, the claim is directed to the seventh embodiment illustrated in Fig. 15 and is distinguished from the first embodiment by reciting that (1) the sleeve is attached to and projects upward from the base, (2) the shaft projects into the sleeve without reciting that the shaft projects from the base, and (3) the hub supports the rotor, the back yoke and covers and outer circumferential part of the sleeve. To overcome the rejection, Applicant has amended the claim as with Claim 13.

Regarding the rejection of Claim 16 under § 103(a), the Examiner asserts that the claim is unpatentable over Lee as modified by Sung and Komura. Applicant has amended the claim as with Claim 3 to overcome the rejection over Lee and as with Claim 6 to distinguish over Komura.

Claim 17 has been rejected under 35 U.S.C. §§112, first and second paragraphs and 103(a).

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Regarding the rejection of Claim 17 under § 112, first paragraph, the claim is directed to the eighth embodiment illustrated in Fig. 16 and distinguished from the seventh embodiment by reciting that (1) the back yoke is attached to an outer circumferential part of the sleeve and (2) the rotor surrounds the coil. The claim does not recite that the yoke is attached to the coil. Accordingly, Applicant asserts that the rejection of the claim is improper.

Regarding the rejection of Claim 17 under § 112, second paragraph, Applicant has amended the claim as follows to overcome the rejection:

a hub, supporting said ~~back~~ shaft

Applicant has amended Claim 16 similarly.

Regarding the rejection of Claim 17 under § 103(a), the Examiner asserts that the claim is unpatentable over Lee as modified by Sung and Komura. Applicant has amended the claim as with Claim 3 to overcome the rejection over Lee and as with Claim 6 to distinguish over Komura.

Claim 18 has been rejected under 35 U.S.C. §§112, second paragraph and 103(a).

Regarding the rejection of Claim 18 under § 112, second paragraph, the claim is directed to the ninth embodiment illustrated in Fig. 17 and distinguishes from the first embodiment by reciting that a thrust washer is at the lower end

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portion of the sleeve. Applicant has amended the claim as follows to overcome the rejection:

~~at least one permanent magnet on said rotor;~~
~~a coil on said base and surrounding an outer circumferential part of said rotor; and~~
~~a thrust washer at a lower end portion of said sleeve[[:]]~~
~~a color wheel attached to an outer circumferential part of said sleeve;~~
~~a holder projecting outwardly along a direction of a core of said shaft and a right angle to said shaft;~~
~~a first magnet attached to a concavity of an upper part of said hub; and~~
~~a second magnet attached to an upper portion of said shaft, which acts as a brake for said first magnet.~~

Regarding the rejection of Claim 18 under § 103(a), the Examiner asserts that the claim is unpatentable over Fukita (USPN 5831363) as modified by Sung. Applicant has amended the claim to distinguish around Fukita as follows:

said coil extending above and below said rotor...

In light of the foregoing, the application is now believed to be in proper form for allowance of all claims and notice to that effect is earnestly solicited.

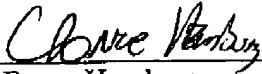
Applicant respectfully requests a one month extension of time for responding to the Office Action. The fee of \$120.00 for the extension is provided for in the charge authorization presented in the PTO Form 2038, Credit Card Payment form, provided herewith.


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If there is any discrepancy between the fee(s) due and the fee payment authorized in the Credit Card Payment Form PTO-2038 or the Form PTO-2038 is missing or fee payment via the Form PTO-2038 cannot be processed, the USPTO is hereby authorized to charge any fee(s) or fee(s) deficiency or credit any excess payment to Deposit Account No. 10-1250.

Respectfully submitted,
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